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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/944,091	08/31/2001	David R. Kranz	12942.0067.N	1349
7590 05/10/2005 CANTOR COLBURN LLP 55 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002			EXAMINER STRICKLAND, JONAS N	
			ART UNIT 1754	PAPER NUMBER
DATE MAILED: 05/10/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/944,091

Applicant(s)

KRANZ, DAVID R.

Examiner

Jonas N. Strickland

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**– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/05</u> . | 6) <input type="checkbox"/> Other: _____  |

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## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 4/18/05 has been entered.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1-5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guth et al. (US Patent 5,599,758) in view of Wintrell (US Patent 4,153,426).

Applicant claims a process for removing gaseous pollutants from combustion gases comprising contacting a catalyst absorber with said combustion gases until the catalyst absorber is at least partially saturated, the improvement comprising regenerating the catalyst absorber with a regeneration stream of syngas produced in a gasification unit.

Guth et al. discloses a process for the regeneration of a catalyst/absorber after extended exposure to pollutants in the combustion gases of engines, wherein the regeneration gas is comprised of a mixture of hydrogen and carbon monoxide (see abstract and col. 3, lines 1-7). However, Guth et al. does not disclose wherein the synthesis gas is produced in a gasification unit.

Wintrell teaches a method and apparatus for producing synthesis gas comprised of hydrogen and carbon monoxide by using a gasifier (see abstract; col. 1, lines 13-26).

Therefore, it would have been obvious to one of ordinary skill in the art to modify the teachings of Guth et al., based on the teachings of Wintrell, by using synthesis gas produced from a gasification unit, since Wintrell teaches wherein it is known in the art to produce carbon monoxide and hydrogen in a gasifier unit. Such modification would have been obvious to one of ordinary skill in the art, because one of ordinary skill in the art, would have expected a process for producing synthesis gas as taught by Wintrell to have been similarly useful and applicable to one of ordinary skill in the art for a process which utilizes synthesis gas as taught by Guth et al. Wintrell continues to teach wherein the production of synthesis gas can be used for various purposes. Therefore, it would have been obvious to use the synthesis gas produced by Wintrell in the process for

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regeneration as taught by Guth et al., which teaches regenerating a catalyst absorber with synthesis gas.

With respect to claims 2-4, Guth et al. discloses an oxidation catalyst comprised of platinum, disposed on a high surface area support (see claim 13). With respect to claim 5, Guth et al. discloses wherein the support may comprise alumina (col. 1, lines 66-67). With respect to claim 7, Guth et al. discloses wherein the oxidation catalyst is coated with an absorber selected from hydroxides, carbonate, bicarbonate and a mixture of an alkali or alkaline earth (see claim 13).

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Guth et al. (US Patent 5,599,758) in view of Wintrell (US Patent 4,153,426) as applied to claims 1-5 and 7 above, and further in view of Campbell et al. (US Patent 5,451,558).

Applicant claims with respect to claim 6, wherein the high surface area support is coated on a ceramic or metal matrix structure. The teachings of Guth et al. in view of Wintrell have been discussed with respect to claims 1-5 and 7, and both references do not disclose wherein the high surface area support is coated on a ceramic or metal matrix structure.

However, Campbell et al. teaches a process for the reaction and absorption of gaseous air pollutants. Campbell et al. continues to teach wherein a catalyst absorber is used made of alumina/platinum/carbonate salt (see abstract). Campbell et al. continues to teach wherein the high surface area support may be coated on a ceramic or metal matrix structure (col. 4, lines 12-20).

Therefore, it would have been obvious to one of ordinary skill in the art to modify the teachings of Guth et al. in view of Wintrell, based on the teachings of Campbell et al., by coating a high surface area support onto a ceramic or metal matrix structure, because Campbell et al. teaches wherein a high surface area support may be coated on a ceramic or metal matrix structure. Such modification would have been obvious to one of ordinary skill in the art, because one of ordinary skill in the art, would have expected a process for removing gaseous pollutants using a catalyst absorber as taught by Campbell et al., to have been similarly useful and applicable to a process for removing gaseous pollutants using a catalyst absorber as taught by Guth et al. in view of Wintrell.

6. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guth et al. (US Patent 5,599,758) in view of Wintrell (US Patent 4,153,426) as applied to claims 1-5 and 7 above, and further in view of Courty et al. (US Patent 4,088,736).

Applicant claims with respect to claims 8 and 9, wherein the syngas is cleaned in an acid gas removal unit and wherein the acid gas removal unit removes a substantial portion of any sulfur components in the synthesis gas. The teachings of Guth et al. and Wintrell have been discussed with respect to claims 1-5 and 7 and the references are silent in regards to the teachings of claims 8 and 9.

However, Courty et al. teaches a process for purifying a gas containing hydrogen sulfide from a gasification unit having carbon dioxide (col. 1, lines 20-25), as well as hydrogen and/or carbon monoxide, synthesis gas (col. 3, lines 60-61). Courty et al. continues to teach wherein the hydrogen sulfide is treated with a mass of zinc oxide (see abstract and col. 1, lines 15-46). Courty et al. continues to teach wherein during

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regeneration cycles zinc oxide cleans the regeneration gas of gaseous sulfur compounds (col. 4, lines 16-26).

Therefore, it would have been obvious to one of ordinary skill in the art to modify the teachings of Guth et al. in view of Wintrell, which teaches producing a carbon dioxide and hydrogen regeneration gas from a gasification unit and reducing the amount of pollutants produced from the process, such as hydrogen sulfide, based on the teachings of Courty et al., which teaches a process for reducing hydrogen sulfide from a gasification process by passing the gas comprised of synthesis gas and acidic gases, such as hydrogen sulfide and other sulfur compounds onto a bed of zinc oxide. Such modification would have been obvious to one of ordinary skill in the art, because one of ordinary skill in the art, would have expected a gasification process, which includes reducing pollutants, such as hydrogen sulfide from a gas stream comprised of synthesis gas as taught by Courty et al., to be similarly useful and applicable to a gasification process for wherein synthesis gas is used as a regeneration gas produced from a gasification unit as taught by Guth et al. in view of Wintrell. While Guth et al. and Wintrell do not teach acid gas removal, Courty clearly teaches wherein acidic gases may be removed from gaseous effluents containing synthesis gases from gasification plants of solid, liquid, and gaseous combustibles (col. 3, lines 57-60).

7. Claims 10-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guth et al. (US Patent 5,599,758) in view of Wintrell (US Patent 4,153,426) and Courty et al. (US Patent 4,088,736) as applied to claims 1-5 and 7-9 above, and further in view of Debbage et al. (US Patent 5,762,885).

Applicant claims with respect to claims 10-21, a shift reactor, a turbine generator and a heat recovery steam generator, which are not taught by the already cited prior art.

However, Debbage et al discloses an apparatus for removing contaminants from gaseous streams. The reference discloses an apparatus for regenerating a catalyst absorber after contact with a combustion exhaust. With respect to claims 10-12, Debbage et al. discloses a shift reactor, a shift catalyst, and wherein the shift catalyst converts carbon monoxide to hydrogen and carbon dioxide (col. 5, lines 28-45). With respect to claim 13, it would have been obvious to one of ordinary skill in the art to expect the process disclosed by Debbage et al. in view of Courty to convert a carbonyl sulfide to hydrogen sulfide and carbon dioxide, since Debbage et al. teaches a shift catalyst and shift reactor and Courty teaches a gas which comprises COS (col. 3, line 62). With respect to claim 16 and 21, Debbage et al continues to teach a turbine exhaust and wherein a portion of the regeneration synthesis gas is recycled back to the exhaust to produce power in the turbine generator (see Figure 1 and col. 7, lines 40-53). Debbage et al continues to disclose a process using a heat recovery steam generator, with respect to claims 17-19 (col. 4, lines 36-53).

It would have been obvious to combine the cited references, since all of the references are directed towards treating gaseous pollutants using catalyst absorber systems.

### ***Conclusion***



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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonas N. Strickland whose telephone number is 571-272-1359. The examiner can normally be reached on M-TH, 7:30-5:00, off 1st Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jonas N. Strickland  
April 29, 2005



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